OPERATING MANUAL

LABSTAC

THERMOSTATIC DRYING OVEN

OVE13-040

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INDEX

1. Safety and Warning signs, label explication

This manual has important use information, user should comply with it.
Put this manual in convenient place for later use.
The symbols appear to the equipment and the manual will guide you safely and correctly to operate this equipment,to avoid the possible harm.
• “Warning” symbol

 Warning It will cause serious harm or fatal accident if not comply with warning
• Attention” symbol

 Attention It will cause human injury, equipment damage and loss of relative property if not comply with attention
■ The meaning of symbols：

 Prohibit

 Must follow
■ Symbols on equipment

 AC

 Protective conductor terminal

 Power is connected

 Power is disconnected

 Warning, Attention, Caution and Danger

1.1 Safety operation and Preventive measure

 Warning

	Do not place this equipment outdoors. if it exposed in the rain, it may cause creepage and electric shock.
	Only professional person have qualification to install this equipment. If not, it may cause electric shock or fire.
	Should place this equipment on the firm ground in case of tumble. If not, it may cause injury because it capsizes.
	Do not place equipment in humid environment or a place with dripping water. Otherwise it may cause creepage or electric shock
	Do not place equipment near flammable materials and volatile substance. Otherwise it may cause explosion or fire.
	Do not place equipment in the area where surrounded by acidic or corrosive gas, Otherwise it may cause creepage or electric shock

	Please use power supply socket with protective conductor terminal in case electric shock. If power socket without protective conductor terminal, it is necessary to install it by licensed technician.
	Do not connect protective conductor terminal through gas, water pipe, telephone line or lighting arrester which will cause electric shock.
	Please use specified power supply. If not, it may cause electric shock or fire.
	Do not put volatile and inflammable substances in the inner chamber of equipment if it cannot be sealed, or it may cause explosion or fire.
	Do not insert nail or wire and similar metal objects into any inlet or outlet of equipment, or it may cause electric shock or injury
	Please operate this equipment in safe area if it stores any toxic ,harmful and radioactive substances, or it may do harm to human and environment.
	Make sure to cut off power supply before maintaining equipment in case it causes electric shock or injury .

1.3 Safety operation and Preventive measure

 Warning

	Do not touch any electric components or switch with wet hand, or it may cause electric shock
	Make sure wear mask when maintaining the equipment to prevent any harmful drug substance and airborne particle.
	Do not splash water onto the equipment, or it may cause electric shock or short circuit .
	Do not place container which is filled of water on the top of equipment, or it may cause creepage or electric shock.
	Do not drag, twine or bind power cord. Do not damage power plug, or it may cause electric shock or fire hazard.
	Do not use loose power plug, or it may cause fire or electric shock
	Do not dismantle, repair or refit equipment without authorization and guidance from our company. It may cause fire or injury due to the improper handling.
	Please unplug the power if equipment is malfunctioning. It may cause fire or electric shock if it continues.
	Press power plug instead of pulling the power cord when you want to unplug the power from power socket, or it may cause electric shock or fire hazard because of short circuit.
	Should unplug the power before moving equipment. Do not damage power cord. Damaged cord may cause electric shock or fire.
	Should unplug power plug if it’s not used for long period, or it may lead to electric shock, leakage or fire because of wear and tear of insulator.
	Keep out of reach of children and the door unsealed if the equipment is not supervised or not used for a long period.

	Should inform authorized technician when you dispose the equipment. Should dismount the equipment door to prevent suffocation and such accident.
	Keep out of reach of children with the wrapping plastic.

1.4 Safety operation and Preventive measure

Attention

	Please clean the dust on the power plug and then insert it into power socket properly, or it may cause over-heating or strike sparks
	Check temperature, humidity, segment and timing and other setting value when reboot the equipment after been short circuited or cut off by power supply. Otherwise may cause damage lost of products stored inside.
	Please place equipment in ventilative and dry place if not used for long period after purchase, or it may lead to equipment malfunctioning when use.
	Should arrange proper carrying-tools or qualified person when moving equipment. Prevent tumbling when moving equipment, it may cause damage of equipment or human injury.
	Ensure enough space when moving equipment. If you need to carry it to the second or higher floors, make sure the elevator has enough space for the equipment and working personal.
	Do not put acidic, alkaline or corrosive substance in the inner chamber if the container is not sealed. Otherwise it will cause corrosion or damage to the components of equipment.

2. Instruction (Application, Working principle, Technical parameters)

- Application

OVE13 series Constant temp. Drying Ovens are temperature control equipment with heating control, highly precise and advanced. Widely used in bio-chemistry, pharmacy, medical institution, industrial and mining enterprises, university, colleges and other scientific research field etc. Can be used for drying, baking, disinfection, sterilization, etc.

- Working principle

Constant temp. Drying Ovens transfer actual temperature detected from temperature sensor into signal, through the microcomputer control to the heater towards required temperature.

- Technical parameters

1. Temp control range ： +5～250℃;
2. Temp. resolution: 0.1℃
3. Temp fluctuation range ： ±1.0℃(50℃～240℃);
4. Temp uniform range ： 2%(50℃～240℃);
5. Power voltage ： AC 220V/50Hz;
6. Timing range: 0~99hour, 0~9999min
7. Equipment class：class I
8. Working ambient ： ambient temp 10~40℃ relative humidity70% below ;

3. Product Structure

Components

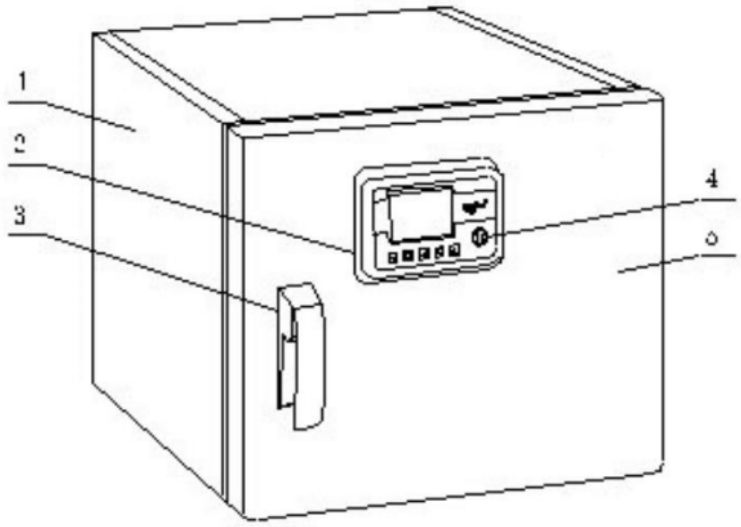


Figure:- 1

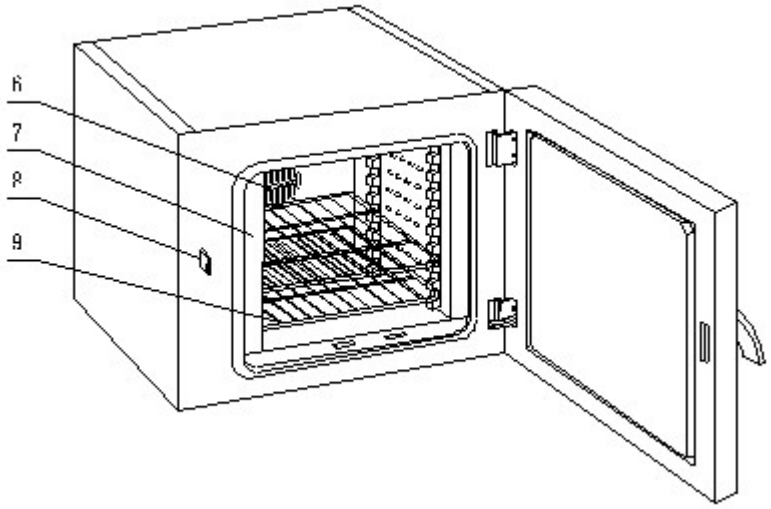


Figure:- 2
1. incubator body 2. controller 3.door handle 4. power supply 5.outer door
6. fan cover 7. inner chamber 8 door button 9 mesh board

Product Structure: Control panel

1 Wind Fast: Show the percentage of fan output;
2 Appointment time indicator light: it will be on when the appointment is turned on;
3 Time: fixedValue timingTime;
4 Key lock;
5 Heating power;
6 Measure the temperature;
7 Set the temperature;
8 Alarm indicator light: flash when it is down or abnormal;
9 The operation is bright ;
10 Stop Bright: It is on during down time;
11 water indicator light (standby);
12 lighting indicator light (standby);
13 heating indicator light;
14 refrigeration indicator light (standby);
15 water level indicator light flashes when there is a shortage of water (standby);
16 Fan indicator light: turn on when the fan is output;
℃Symbol: When the temperature unit is Celsius℃Bright,
℉Symbol: Fahrenheit℉Bright;
Button Explain

 :Set  Metal bolt;  :Shift key;  :Reduce the key;

4. Installation

Installation place
In order to optimize the performance of equipment, please install the equipment in the following condition:

 Attention: ambient temperature 10~30℃ ;relative humidity less than 70%

• Avoid exposure to the sunlight.
Do not place it in direct sunlight, or it won't reach predicted performance

• An efficient ventilative place
If you operate this equipment in a narrow and concealed room, it may lead to over-heating and malfunctioning. Minimum safe distance between equipment and wall is 10CM

• Keep away from heat source
Don't install the equipment near heating source. External excess heat will affect performance of the equipment and may cause malfunctioning

• Flat and firm ground
Make sure to install it in flat and firm ground. Uneven surface or leaning installation may damage equipment or injure people. Proper installation can avoid shaking and noise

• Avoid humid place
Install the equipment in a place where humidity is less than 70%. Otherwise it may cause creepage or electric shock.

 Warning

Do not place this equipment outdoors. If it exposed in the rain, it may cause creepage and electric shock.
Do not place equipment in humid environment or a place with dripping water. Otherwise it may cause creepage or electric shock

• Avoid place with flammable or corrosive gas.
Do not place equipment near flammable materials and volatile substance. Otherwise it may cause explosion or fire. Do not place equipment in the place where has acidic and corrosive gas, or corrosion will cause creepage, electric shock or equipment damage.

Installation
1. Unpacking
Remove packing materials, open the door for ventilation. Please use neutral detergent to clean if the shell and panel is dirty. Then wipe with wet cloth and at last with dry clean cloth

2. Level equipment
Fix equipment with the front brake-wheel after installation in case equipment moves.
To prevent shaking on uneven ground, pads maybe needed.

3. Protective conductor thermal  Warning
Please use power socket that has protective conductor terminal in case of electric shock. If it is not connected, has to install protective conductor terminal by licensed technician. Do not connect protective conductor terminal through gas, water pipe, telephone line or lighting arrester which will cause electric shock.

4. Idle equipment
Before setting equipment aside, empty water in the humidifier and remove internal moisture thoroughly. Be sure the inner chamber is dry and cool before closing the door .

5. Moving equipment
Before moving equipment, empty inner chamber to prevent objects falling off.

5. Preparation before hand

When equipment is running the first time, please operate according to following:
1. Take out the shelf boards and other accessories inside.
2. Clean the inner chamber with gauze
3. Insert the shelf boards into inner chamber according to your experiment and requirement
4. If you place samples on the same shelf, should keep space between samples for air circulation.

⚠ Attention： Do not use NaCl or other Halide solution to clean this equipment, or it will cause rust

6. Operate

1 The order of call-out of each function
Power-on work of the controller:
After the controller is powered on, the monitor Fully lit up, and then the upper limit of the range and the lower limit of the range are displayed. After another 2 seconds, the measurement value is displayed in the upper row, the set value is displayed in the lower row, and enters the standard display mode.
Temperature,Time, wind speed Settings:
Press the SET key, SV flashes, set the temperature, press ▲ or ▼key, make the display as the desired temperature value. Press the function key again, the time flashes (unit is minute), set the timing time (if the timing time is not required, the value is 0), press ▼ or ▲ to display the required time value, and press the function key again, show F(fan), press ▲ or ▼ key, so that the display is the required value, then press the function key, the controller returns to standard mode.
2 Detailed description of each function
- PV temperature measurement value; SV Temperature setting value
If " 0000 " is displayed, the sensor is open or the input signal exceeds the measurement upper limit.
If" 0000 "is displayed, the sensor is short-circuited or the input signal is lower than the lower limit of the measuring range. When the input signal of the controller is not within the measuring range, the buzzer buzzes. Press any key to mute the buzzer.
- Timer function:
When time is set to 0, the timing function of the controller is cancelled and the controller keeps running. When time is not set to 0, the controller provides the timing function. When the running time of the controller arrives, the lower row displays END, the buzzer chirps, the controller stops working, and press any key to silence, and at the same time Push down▲ or ▼ 4 seconds,it can be restarted.

3 Self-toting function of the controller:
Long press the key for 4 seconds and then release, the instrument starts the self-setting function, and the running light flashes. When the temperature runs back and forth for several times, the lamp becomes steady on, and the instrument self-setting ends (set the setting time to 0, cancel the timing, and set the timing time again after the end of the self-setting).

4 Temperature control parameter setting:
In the standard state, long press the SET key, the LCD screen will display LK, adjust LK=18,click the SET key to enter the temperature setting.
5 groups of PID:
Related parameters: segmentation point F1~F4, PID1~PID5
Set the value <= F1, execute PID1
Set value [F1~F2], execute PID2
Set value [Fahrenheit~F3], execute PID3
Set value [Fahrenheit3~Fahrenheit4], execute PID4
Set value > F4, execute PID5
Multiple corrections:
Related parameters PK1 to PK8 are modified in more points.
Modified method, the measured value of the temperature point is directly input to the corresponding PK position.
If a pair of corrected points is no longer needed, the PK is adjusted to the minimum value, which is -1999.

Prompt	Name	Set the range	Explain	Initial value
Ot	Appointment to start up	0-9999 minutes	If the time is equal to ot, it will start automatically and start running.	0
rH	Upper range settings	0～400℃ 0.0～400.0	By adjusting rH, the measuring range of the instrument can be 0 ~ rH(℃).	By user Demand
AL	FloorAlarm setting	0 ~ full range 0.0 ~ full range	When the temperature exceeds SP-At the AL value, the alarm light is on.Alarm output.	6.0
PK1	Target value 1	-1999-9999	Actual measured value1 (Input the mercury thermometer value is the actual measured value)	0
PK2	Target value 2	-1999-9999	Actual measured value2 (Input the mercury thermometer value is the actual measured value)	-1999
PK3	Target value 3	-1999-9999	Actual measured value3 (Input the mercury thermometer value is the actual measured value)	-1999
PK4	Target value 4	-1999-9999	Actual measured value4 (Input the mercury thermometer value is the actual measured value)	-1999
PK5	Goal 5	-1999-9999	Actual measured value5 (the input mercury thermometer value is the actual measured value)	-1999
PK6	Target value 6	-1999-9999	Actual measured value6 (Input mercury thermometer value is the actual measured value)	-1999
PK7	Target value 7	-1999-9999	Actual measured value7 (the input mercury thermometer value is the actual measured value)	-1999

PK8	Target value 8	-1999-9999	Actual measured value8 (Input mercury thermometer value is the actual measured value)	-1999
F1	Split point 1	-20.0-400.0	Temperature split point1:Set the temperature≤FF1 Use the first set of PID1 Control	50.0
F2	Split point 2	-20.0-400.0	Temperature split point2:Set the temperature≤FF2 Use the second group PID2 Control	100.0
F3	Split point 3	-20.0-400.0	Temperature segmentation point3:Set the temperature≤FF3Use the third group PID3 Control	
F4	Split point 4	-20.0-400.0	Temperature split point4:Set the temperature≤FF4 Use the second group PID4 Control;Set the temperature≥FF4 Use the second group PID5 Control;	200.0
P1	Proportional belt	0 ~ full range 0.0 ~ full range	Proportional action section, the larger the P, the smaller the proportion, the lower the system gain, P=0 is the bit control, and the insensitive area is 0.4.	25.0
I1	Integral time (Pre-adjustment time)	10~3600 Second	Integral action time constant, the larger the I, the weaker the integral effect.	240
D1	Differential time (Pre-adjustment time)	0～3600 Second	Differential action time constant, the larger d, the stronger the differential action, and it can overcome the overtune.	180
Ar1	Overshing suppression	0～200%	The smaller the value of Ar, the stronger the controller's ability to suppress temperature overtot.	100
T1	Heating cycle	1 to 100 second	Relay output≮20s, SSR and SCR switch≮2s, only on the heating side	5
P2	Proportional belt	0 ~ full range 0.0 ~ full range	Proportional action section, the larger the P, the smaller the proportion, the lower the system gain, P=0 is the bit control, and the insensitive area is 0.4.	25.0
I2	Integral time (Re-adjust the time	10~3600 Second	Integral action time constant, the larger the I, the weaker the integral effect.	240
Dimension2	Differential time (Pre-adjustment time)	0～3600 Second	Differential action time constant, the larger d, the stronger the differential action, and it can overcome the overtune.	180
Ar2	Overshing suppression	0～200%	The smaller the value of Ar, the stronger the controller's ability to suppress temperature overtot.	100
T2	Heating cycle	1 to 100 seconds	Relay output≮20s, SSR and SCR switch≮2s, only on the heating side	5

P3	Proportional belt	0 ~ full range 0.0 ~ full range	Proportional action section, the larger the P, the smaller the proportion, the lower the system gain, P=0 is the bit control, and the insensitive area is 0.4.	25.0
I3	Integral time (Re-adjust the time	10~3600 Second	Integral action time constant, the larger the I, the weaker the integral effect.	240
D3	Differential time (Pre-adjustment time)	0～3600 Second	Differential action time constant, the larger d, the stronger the differential action, and it can overcome the overtune.	180
Ar3	Overshing suppression	0～200%	The smaller the value of Ar, the stronger the controller's ability to suppress temperature overtot.	100
T3	Heating cycle	1 to 100 seconds	Relay output≮20s, SSR and SCR switch≮2s, only on the heating side	5
P4	Proportional belt	0 ~ full range 0.0 ~ full range	Proportional action section, the larger the P, the smaller the proportion, the lower the system gain, P=0 is the bit control, and the insensitive area is 0.4.	25.0
I4	Integral time (Re-adjust the time	10~3600 Second	Integral action time constant, the larger the I, the weaker the integral effect.	240
D4	Differential time (Pre-adjustment time)	0～3600 Second	Differential action time constant, the larger d, the stronger the differential action, and it can overcome the overtune.	180
Ar4	Overshing suppression	0～200%	The smaller the value of Ar, the stronger the controller's ability to suppress temperature overtot.	100
T4	Heating cycle	1 to 100 seconds	Relay output≮20s, SSR and SCR switch≮2s, only on the heating side	5
P5	Proportional belt	0 ~ full range 0.0 ~ full range	Proportional action section, the larger the P, the smaller the proportion, the lower the system gain, P=0 is the bit control, and the insensitive area is 0.4.	25.0
I5	Integral time (Re-adjust the time	10~3600 Second	Integral action time constant, the larger the I, the weaker the integral effect.	240
D5	Differential time (Pre-adjustment time)	0～3600 Second	Differential action time constant, the larger d, the stronger the differential action, and it can overcome the overtune.	180
Ar5	Overshing suppression	0～200%	The smaller the value of Ar, the stronger the controller's ability to suppress temperature overtot.	100
T5	Heating cycle	1 to 100 seconds	Relay output≮20s, SSR and SCR switch≮2s, only on the heating side	5
Dp	Decimal point Set up	0; 1	DP=0 display resolution is 1℃; DP=1 display resolution is 0.1℃,	1

CE	Time-based unit	0-1	0 is a unit of minutes; 1 is a unit of time.	0
CT	Refrigeration control Delay	0～3600 Second	The delay required to start the compressor twice adjacently, Ct=0 cancels the compressor function.	0
CH	Refrigeration control upper deviation setting	0~full range 0.0 to full range	When the temperature exceeds the CH value and meets the compressor refrigeration control delay, the refrigeration light is on, the refrigeration contact is turned on, and the compressor is started.That is, SP+CH > set value	0.5
CL	Refrigeration control is biased Poor setting	0 ~ full range 0.0 to full range	When the compressor is turned on, measure the temperature.≤When the temperature + CH-CL value is set, the refrigeration contact is disconnected and the compressor is turned off.	0.3
Drt	Open the door for testing	0.0-50.0	If the temperature drops within 10s, the drt is regarded as the door opening detection. If the value is set to 0, this function is not available. (refrigeration without this function, no parameters)	1
uF2	Automatic refrigeration by hand	0-1	0, automatic refrigeration; 1, manual refrigeration	0
Nct	Refrigerate Spot	0.0-99.9	1, when the measured value is less than the nct value, turn on the compressor; When the set value is greater than the nct value, shut down the compressor	40

Long press the set key for 5 seconds, LK=168 will appear to enter: see the following table

Prompt	Name	Set the range	Explain	Initial value
ERt	Temperature filtering	0~9	Filter coefficient	0.2
RL	Lower range setting	-50.0~400.0	Minimum temperature range setting	0.0
Tm	Timing mode		See Table 1	4
CN	Sensor input type	0~6	Do not operate	1
Bm				standby

Co	Compressor selection	0~4	0: Refrigeration start-stop type; 1: Refrigeration balanced type. The program control is generally set to 1; 2： start-stop mode when the set value is less than Eu, do not start the compressor when the set value is greater than Eu; 3: When the set value is less than Eu, the compressor is normally turned on, and when the set value is greater than Eu, the compressor is not started. 4: The compressor is normally on when the set value is less than Eu, and the compressor is in start-stop mode when the set value is greater than Eu.	2
EU	Refrigeration balanced selection	0~1	If C0=1, 0: does not start the compressor. 1: starts the compressor.	0
CF	Celsius Fahrenheit choice	0~1	0: Celsius 1: Fahrenheit	0
Tc	Refrigeration shutdown zone	0~100	PID heating when the measured temperature is less than or equal to the set temperature -tc value (valid only when the compressor is normally open)	1.0

FuL	Lower limit of fan speed	0~100	Lower limit of fan speed	40
FuH	The upper limit of fan speed	0~100	The upper limit of fan speed	60
tF	Automatic extreme adjustment fan	0.0~50.0	The set temperature is greater than Fn+tF or the set temperature is greater than Fn-tF as a fast fan, and for other values, it is a slow fan, which can adjust the speed from 0-100.	2.0

Form 1:™

	Time to reach the set value	Power-up and zero ST	Key to start
0	Deny	Deny	Deny
1	Deny	Deny	Yes
2	Deny	Yes	Deny
3	Deny	Yes	Yes
4	Yes	Deny	Deny
5	Yes	Deny	Yes
6	Yes	Yes	Deny

5 Print control parameter setting:In the standard state, press and hold the SET key, the upper row of the LCD screen shows LK, adjust LK=16 Click the SET key to enter the temperature setting.

UT	Usb flash drive storage interval	0~9999	Set the storage interval of U disk (how long the U disk is saved once); Set 0 to not save.	0～9999Minute (0)
Pt	Print interval	0~9999	Set the printing interval (how often to print once); Set 0 to not print.	0～9999Minute (0)
Pn	Printer type	0~1	0: Rongzhong printer;1: WeihuangPrinter	0
PL	Printing Type	0~1	0:Digital printing;1:Curve printing	0
Yr	Year	0~9999	Year setting	0
Mon	Month	0~9999	Month setting	0
Day	Date	0~9999	Date setting	0
HR	Hour	0~9999	Hour setting	0
Min	Minute	0~9999	Minute setting	0
On	Update the settings	0~1	0 Do not update Settings; 1 Update Settings	0

6 Communication parameter setting:
In the standard state, long press the SET key, the LCD screen will display LK, adjust LK=36, tap the SET key to enter the parameter setting.

dId	Equipment Number	0～9999	Equipment Number	0
Ad	Correspondence address	0～99	Correspondence address	3
bA	Potter Strain	0～5	0: 1200; 1:2400; 2:4800; 3:9600; 4:19200; 5:38400	3
FO	Communication format	0～2	0: No verification (NONE) Connect the printer;1: Strange Check (ODD);2: IInspection;(EVEN upper computer)	0

7. Routine using and maintenance

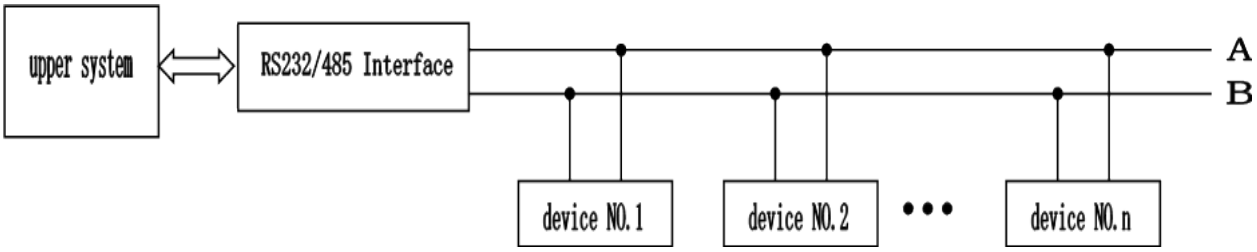
	Do not capsize when moving.
	Do not change the settings frequently during process, it may affect the control accuracy and the life of use.
	The machine is equipped power switch and circuit breaker, if failure occurs during operation, please cut off the power and check the control circuit if it’s intact, and then check the other parts. (See wiring diagram)
	Make sure the door is shut. If the door is not closed properly, the device may not be able to reach maximum performance. When closing the door, do not slam the door to avoid damage of the locking system.
	Do not use corrosive solution to wipe the exterior in order to maintain the appearance of the device. Please use dry cloth or alcohol wipe to keep the inner chamber clean.

	When the device is not in use, keep the chamber dry, and cut off the power supply.
	In order to keep temperature evenly inside the chamber, always check the axial fan in the chamber if it is functioning properly. During the experiment, in order to allow air circulation, objects inside the chamber should not be placed too close and blocking the vent. Do not touch and collide the temperature probe inside, it may cause failure of temperature control.
	Secure the shelf. Otherwise it may damage the cultures.
	Do not lean against the glass or apply pressure on the glass, it might cause injury.
	Do not lean against the door of the device. To prevent tipping of the equipments or equipment damage, personal injury by the damaged door.
	When failure occurs, please arrange professionals or contact with the factory sales department. User should not attempt to repair or fix it.
	Our company products have “Three Guarantees”. Two years warranty, free to repair (exclude mis-operation and consumable items) when equipment has failure since the purchase day.

8. Assistant Configuration connection

S-485 Instructions for use of the converter

• In order to receive remote data between the different standard serial interface computer, external device or intelligent instrument. Must provide conversion of standard serial interface. The converter is compatible with RS-232, RS-485 standard, capable of converting single-ended RS-232 signal to a balanced differential RS-485 signals. (It can connect 16 controller of this series together at the same time)



Trouble shooting

1. Data communication failure

(1)Check RS-232 port connection whether is correct.

(2)Check RS-485 port output connection whether is correct.

(3)Check whether the port whether is connected.

2. Data missing or fault

Please check data communication equipment rate and format in accordance.

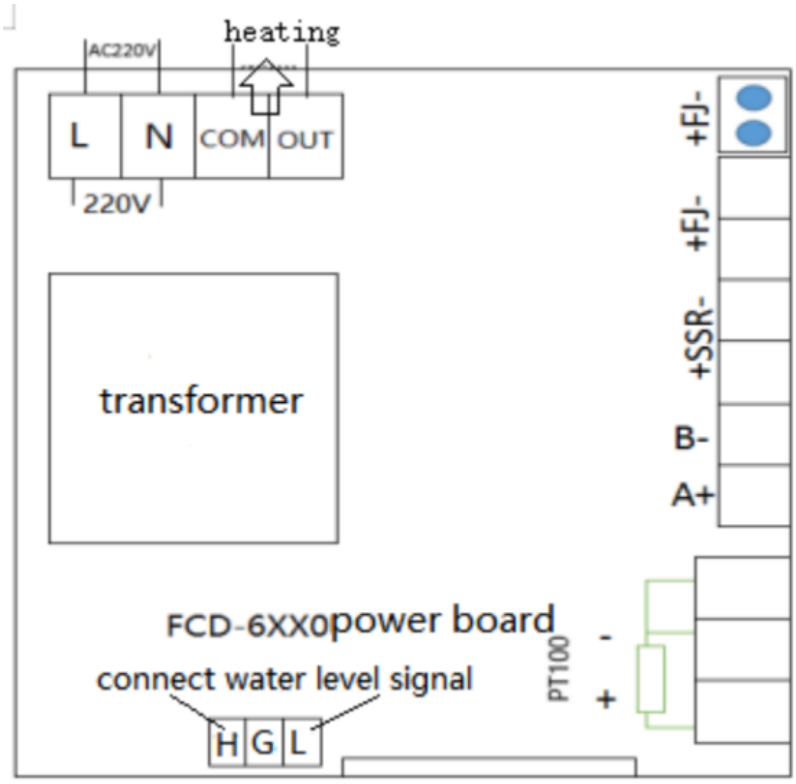
9. Troubleshooting

Trouble	handling
Sensor failure display (- - -)	Temperature sensor abnormal, please check temperature sensor (model:PT100)
Temp. can’t reach of setting value	·Check screen if it displays heating, If it’s heating, heating tube damage or control panel failure or circuit failure.
Temp. rises too slow	Check fan whether is working properly (Open the door). If it’s not running, check according to the wiring layout
Screen can not display	·Please check if the power socket is ~220V ·Please check if the power switch is on ·Please check power switch, if it is tripping operation, please check wring layout.

10. Specification

Model	Thermostatic Drying Oven OVE13-040
External Dimension	570×580×593
Internal Dimension	350×350×350
Effective volume	40L
Power input	770W
Case Shell	Cold-roll steel sheets with spraying treatment
Inner hull	mirror surface SUS304 stainless steel
Door	With original heat insulation design
Shelf	High quality carbon steel and surface is chrome plating, adjustable space
Heat insulation system	Polystyrene foam
Temp. control system	PID system auto-setting program
Heating system	Electric tube heating element
Fan	Centrifugal fan
Temp. sensor	Sum sung Temp. sensor PT100
Screen	LCD(Liquid Crystal Display),English/Chinese Display
Warning system	Temp. upper limit warning ; Temp. sensor failure warning with sound/light
Weight	40kg
shelves(Standard)	2
Optional Accessories	Port converter, portable printer,

11. wiring diagram



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